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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,880	06/26/2003	David D. Martenson	D/A1690Q1	7841
25453	7590	07/12/2005	EXAMINER	
PATENT DOCUMENTATION CENTER XEROX CORPORATION 100 CLINTON AVE., SOUTH, XEROX SQUARE, 20TH FLOOR ROCHESTER, NY 14644			ELLIS, SUEZU Y	
			ART UNIT	PAPER NUMBER
			2878	

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/608,880	MARTENSON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Suezu Ellis .	2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on May 16, 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,12-14,16-20,23,25-28,35,39-44,46,47,53 and 54 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,12-14,16-20,23,25-28,35,39-44,46,47,53 and 54 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **FINAL REJECTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 3-6, 12-14, 16-20, 23, 25-28, 35, 36, 39-44, 46, 47, 53 and 54 have been considered but are moot in view of the new grounds of rejection.

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on May 16, 2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 4, 13, 23, 25, 26 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Khan (US 5,274,229).

With respect to claims 1, 3, 4, 13, 23, 25, 26 and 36, Khan discloses an optical encoder that has a code wheel for modulating a beam of light and a sensor for detecting the modulated light (col. 1, lines 15-21). Khan illustrates in Fig. 1 the code wheel with an optical track comprising a plurality of first light areas with varying heights (1x, 2x, 4x) and a plurality of second light areas with substantially constant height (8x) wherein both sets of encoder bars are substantially uniformly spaced center to center so as to have a substantially uniform pitch (col. 3, lines 54-56). Fig. 1 further illustrates the first light areas gradually change height and are shorter and than the second light areas and the second light areas are disposed on both sides of the first light areas.

Claims 44, 47, 53 and 54 are rejected under 35 U.S.C. 102(e) as being anticipated by Ito (JP 204-239825A). For translation purposes, US publication (2004/0155178) will be used for referencing.

With respect to claims 44, 47, 53 and 54, Ito discloses in Figs. 11A and 11B, an encoder with alternating light and dark areas (slits 102 and metal) wherein the light areas are substantially uniformly spaced center to center so as to have a substantially uniform pitch. Ito further discloses a first light area (104) of a certain height and a plurality of second light areas (102) of a substantially constant second height wherein the heights of the first and second light areas are different. Ito further discloses the first light area is taller than the second light areas and the second light areas are disposed

Art Unit: 2878

on both sides of the first light area. Ito further illustrates in Fig. 11B the light areas having non-linear sides.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 6, 12, 27, 28 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khan in view of Ito (US 2004/0155178).

With respect to claims 5, 6, 12, 27, 28 and 35, the modified Khan fails to expressly disclose the first light areas gradually change height and are taller than the second light areas and the first light areas and the second light areas having non-linear sides, however it would have been an obvious design choice to modify the light areas in order to produce a periodic optical pattern of various shapes, as taught by Ito (Figs. 11A, 11B).

Claims 14, 16-20, 37 and 39-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Loewen (US 5,017,776) in view of Barbehenn (US, 5,929,789).

With respect to claims 14, 16, 17, 19, 37, 39, 40 and 42, Loewen discloses an optical encoder comprising alternating curved light (window – 200, 201) and dark (spoke – 203, 204) areas in Fig. 2 which modulates light and a sensor wherein the encoder is movable relative to the sensor (col. 6, lines 41-45, 53-56). Fig. 2, further illustrates the light areas are substantially uniformly spaced center to center so as to have a substantially uniform pitch. Loewen fails to expressly disclose the encoder having transmissively different light areas. Loewen and Barbehenn are directed to a similar field of endeavor of position encoders. Barbehenn discloses a position encoder with an optical grating on a code wheel and a sensor wherein the code wheel is movable relative to the sensor (col. 2, lines 21-24). Barbehenn discloses in Fig. 2, the optical grating comprising an optical track with a series of contiguously adjacent light areas that are substantially uniformly spaced center to center so as to have substantially uniform pitch. Barbehenn further discloses a plurality of contiguously adjacent first light areas (82, 84, 86) and a plurality of second light areas (88) of a substantially constant second light area transmissivity, wherein each of the first light areas is transmissively different from the substantially constant second light areas. Fig. 2 illustrates the second light areas are disposed on both sides of the contiguously adjacent first light areas. Barbehenn further discloses the first light areas are darker than the second encoder bars, thus are less transmissive than the second light areas (col. 5, lines 27-35). It would have been obvious for a person of ordinary skill in the art to modify the encoder of Loewen to include transmissively different sets of light areas as a more accurate means to detect the position of the object to be measured.

Art Unit: 2878

With respect to claims 18, 20, 41, and 43, the modified Loewen fails to disclose an embodiment where the first light areas are lighter and more transmissive than the second light areas. It would have been an obvious design choice to a person of ordinary skill in the art to modify the lightness of the light areas as another means to produce a sinusoidal output signal.

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito. Ito fails to expressly disclose the first light area being shorter than the second light areas, however it would have been an obvious design choice to modify the light areas in order to produce a periodic optical pattern of various shapes.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2878


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Telephone/Fax Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suez Ellis whose telephone number is 571-272-2868. The examiner can normally be reached on 8:30am-7pm (Monday-Thursday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
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**SUPERVISORY PATENT EXAMINER**  
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